

# ARM REST MASSAGE FEATURE FOR WHIRLPOOL TUBS

## Description

### BACKGROUND OF THE INVENTION

#### 1. Field of the invention

This invention relates generally to bathing devices and their production.

More specifically, this invention relates to a novel form of bathing device, and in particular, to a whirlpool tub having at least one armrest with air and/or water therapy jets on an upper armrest surface. The armrests may also be undercut so as to maximize the seating volume within the tub.

#### 2. Discussion of the Related Art

It is well-known in the art that tubs can be created with recirculating hot water emitted through orifices and jets under pressure. These tubs go by various names which may be distinguished on the basis of design or function or otherwise by those of ordinary skill in the art. Common names are hot-tub, spa, and whirlpool bath.

The therapeutic advantage achieved by the use of a stream of water expelled under pressure from a jet in a whirlpool tub or the like, as well as from air emitted through orifices in the tub are well known. However, it has not been heretofore proposed to place such jets or orifices in an armrest on the surface that the bather can rest his or her forearm, wrist and/or hands.

In conventional tubs, often made of plastic or metal, either no armrests are included or whatever armrests that are provided are limited. This results from disadvantages of

standard and common molding techniques. Presently, to accomplish de-molding, that is, removal of the tub from the mold, the tub must be made so that the smallest part of the tub is at the bottom and the tub must be made progressively larger from bottom to top. The terms "draft" and "leave" are used in arts such as metallurgy to describe the slight taper imparted to a molded object to permit removal of the object from the mold without damaging the mold. Present methods, because they depend on one-piece molding design, prevent creating molds in which any part of the tub is narrower than any part below it. As a result of the limitations on molds, present tubs do not have undercut armrests integral with the tub. Any armrests come at the expense of the seating area because, as noted above, no part of the tub can be wider than any part above it. Whatever space is taken by integral armrests comes at the sacrifice of seating space.

Conventional tubs may have armrests added after freeing the tub from the mold or by using some secondary manufacturing technique. Conventional methods must overcome the problem of leaking which results from add-on components which are attached by some method requiring breaching the watertight integrity of the tub. Over time, multipart tubs spring leaks around joints. Often, added components take up valuable space intended for seating or for feet and legs. A reduced seating area, in turn, limits mounting of additional therapeutic devices.

## SUMMARY OF THE INVENTION

It is therefore, a principle of this invention to provide a whirlpool tub or similar device having armrests with therapeutic air and/or water orifices and/or jets disposed therein to expose the user to the therapeutic benefits of air and/or water under pressure. The

contemplated invention includes armrests which protrude from at least one exterior wall of the tub and either terminate in a substantially vertical wall ending at the tub bottom or seating surface, or which taper into the side wall in a so-called "undercut" arrangement so as to open up a volume for the user's lower body to have additional room. In the

5 embodiment having an undercut armrest, by extending and protruding the armrest and by opening up a volume below the armrest, greater comfort, space and room is afforded the bather using the tub.

By providing removable mold components, these armrest features can be formed or cast into the finished goods at molding time. By following this technique and techniques

10 well-known to those of ordinary skill in the art, greater comfort is afforded the bather. One reason for this greater comfort is that, in freeing the manufacturing process from the need for drafting, the bottom and seating area can be made wider than parts above them. This allows for greater foot, leg, and posterior room. At the same time, the armrests provide greater comfort by giving the bather something to rest upon.

15 The invention preferably includes air bubbling orifices known to the art on the upwardly facing armrest surface of the armrest.

The invention may also include water jets to direct the flow of water either upwardly out of the upwardly facing armrest surface or generally horizontally out of a forward facing surface of the armrest. Such jets are well-known to those of ordinary skill in the art and may

20 include a variety of features such as directional and flow rate adjustability. A common form of these movable jets has a cylindrical base portion which can be inserted into an orifice in an armrest. Water flows through the cylindrical base portion and from there through a jet or nozzle. The cylindrical base portion can be turned about the linear axis of the cylinder.

Directionally adjustable jets can be angled through a wide range of angles, usually around 150 degrees, although with some designs ranges of motion can exceed 180 degrees. By moving the cylindrical base portion and changing the jet angle, the flow of water can be directed wherever the user desires. In some forms of the jets, a ring around the cylindrical portion can be loosened or tightened. This loosening or tightening varies the effective size of the jet nozzle and, through principles well known to physics, i.e., Bernoulli's Principle, varies the pressure and volume of the water inversely.

One advantage of the invention is that the tub provides for greater comfort for one or more bathers.

An additional advantage of the invention is that the tub is sufficiently large to hold at least one bather, has a bottom, has an approximately horizontal surface above the bottom of the tub upon which the bather can sit, has at least one armrest to support an arm of the bather, and has at least one orifice for conducting water under pressure onto some body part or parts of the bather, thereby giving the bather a massage which can prove pleasurable as well as therapeutic. By combining single-user seating areas, tubs capable of holding any number of bathers can be created. Three or four bather tubs are quite common. The techniques for stringing single-user seating areas into multiple-user tubs are well-known within the art.

Another advantage of the invention is that the tub can be a hot tub, spa, whirlpool bath, or pool.

A further advantage of the invention is that the tub can have a control unit which can control the temperature, pressure, and timing of the flow of water. Control units with these functions are commodities.

## BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a front cross-sectional elevational view of one seating area of a bathing device in accordance with this Invention with a bather seated therein.

Figure 2 is a top view of one seating area of a bathing device in accordance with this Invention.

Figure 3 is a front view of a bathing device which shows a portion of the armrests with therapeutic devices installed herein.

Figure 4 is a top view of a tub in accordance with this Invention with multiple seating areas.

Figure 5 is a cross-sectioned elevation view of an armrest portion of a tub employing my invention.

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DETAILED DESCRIPTION OF  
THE PREFERRED EMBODIMENTS

While this specification concludes with claims defining the features of the invention that are regarded as novel, it is believed that the invention will be better understood from a consideration of the following description in conjunction with the drawing figures. Variations between and among the figures reveal different embodiments.

Referring now to the drawings, FIG. 1 illustrates one section of a tub 110 in use wherein 110 is the shell of the tub and 120 is an armrest molded into the tub 110. The user is shown resting one arm on each armrest 120. It will be noted that there are armrests 120 on either side of the user. The left and right armrests 120 illustrated in this embodiment are mirror images of one another. In alternate embodiments, the left and right armrests might be different from one another or only one armrest may be used. For purposes of this description, only the armrest 120 on the user's right side is described. However, all that applies to the right side armrest 120R applies as well to the left side armrest 120L.

It is not necessary that the user rest either or both arms on the armrests 120 for the tub 110 to be effective. However, resting one or both arms on the armrests 120 can provide additional therapeutic benefits to the hands, fingers, and forearms rested on the armrests 120. The upright seating position of the user is just one of many ways the user can gain benefit. The user may select any body position which the user finds comfortable or therapeutic. In addition, the tubs which employ this invention may take any form, so long as they have armrests with air and/or water therapy features.

The armrests 120 are undercut at 135 to expand the seating area 140 available to the user. Inside the curve forming the armrest 120 is a duct 130 for carrying water under

pressure. This duct 130 can be tubing or any other effective means for carrying water, which means are well-known to those of ordinary skill in the art. In FIG. 4, multiple seating areas are shown. FIG. 4 shows that tubing 130 can be routed to provide for continuous flow of water through the tub 110.

5           The user is seated on a horizontal or nearly horizontal surface 140. This surface can be flat or can be curved to fit the body contours of users. For some users, curving gives additional comfort.

10           Orifices 150 are shown in the armrest 120. These orifices 150 permit air to flow under pressure from the duct 130 so that, if the user positions his or her body in certain ways, the air bubbles will be emitted onto the user's hands, fingers, or forearms. This provides a soothing and therapeutic massage to the user.

15           A wall portion extending from the seating area 140 to the floor 170 is shown at 160. Additional orifices 165 are built into the wall 160. The wall 160 need not be vertical and may be sloped from the vertical to meet the needs of users and to provide additional comfort and can be drafted. The floor 170 of the tub 110 is the lowest part. In a preferred embodiment of a complete tub, the floor extends between and among all the seating areas 140 and forms part of the watertight integrity of the tub 110. The bottom may have a drain or there may be a drain in another part of the tub. These drains are not illustrated. A handle 180 gives the user something to grasp when entering or exiting the tub.

20           A control unit 190 gives the user the ability to set a desired water temperature and/or air and water flow rates. The control unit 190 may have a timer which will shut off the flow of air or water after a desired period of time.

FIG. 2 shows a view of a seating area in an embodiment slightly different from that

shown in FIG. 1. The tub itself is shown as 210. This embodiment has built-in headrests 220 to add to user comfort. Orifices 230 direct water under pressure onto the user's body parts. If the user is seated as in FIG. 1, the water from these orifices provides a soothing back massage. Here, three columns of orifices 230 are shown but there can be any number of orifices and these orifices can be of any size. The seat 240 is shown flat, but the seat could be given almost any contour consistent with comfort of the user. Orifices 250 in the seat 240 permit air under pressure to be emitted at the user providing soothing massage or therapy to the user's back. The two armrests 260 are shown with air orifices 270 which provide air under pressure to the user's hands, fingers, and forearms depending on how the user is positioned.

The control unit 280 conforms to the same description as that of control unit 190.

FIG. 3 shows one seating area of a tub 310 having orifices 320. Armrests left and right 330 with enclosed ducts 340 give the user a place for resting arms and permit water under pressure to be forced onto the user's fingers, hands, or forearms depending on how the user is positioned. The seat is shown at 350 and the bottom at 360. In this embodiment, no orifices are shown on the vertical or nearly vertical wall between the seat 350 and floor 360.

FIG. 4 shows a tub 410 with three seating areas 420. All parts thereof are shown in other figures. The significance of this embodiment is that single-seating areas are shown joined so that the water flows through the ducts 440 in a continuous path. Water escapes the ducts through the orifices such as those specified for FIG.'s 1, 2, and 3.

FIG. 5 shows a detail of one embodiment of a jet 510. The jet has a nozzle 520 and body 530. Jets are commodities. Jets are fitted into orifices and vary pressure and volume of water flow according to well-known principles of physics.



in the side wall 262 or the armrest surface 264. Any combination of air and/or water jets at any positions on armrest 260 is contemplated to be within the cope of my invention, since it has not been heretofore proposed to provide armrests in tubs of this nature having water and/or air therapy features incorporated therein.

5           Various modifications and alterations of this inventions will become apparent to those skilled in the art without departing from the scope and spirit of this invention, and it is understood that this invention is not limited to the illustrative embodiments set forth hereinbefore.

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